

University of Groningen

Vocational Training and Career Employment Precariousness in Great Britain, the Netherlands and Sweden

Korpi, Tomas; Graaf, Paul de; Hendrickx, John; Layte, Richard

Published in:
Acta Sociologica

DOI:
[10.1177/0001699303046001002](https://doi.org/10.1177/0001699303046001002)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2003

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Korpi, T., Graaf, P. D., Hendrickx, J., & Layte, R. (2003). Vocational Training and Career Employment Precariousness in Great Britain, the Netherlands and Sweden. *Acta Sociologica*, 46(1), 17.
<https://doi.org/10.1177/0001699303046001002>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Vocational Training and Career Employment Precariousness in Great Britain, the Netherlands and Sweden

Tomas Korpi, Paul de Graaf, John Hendrickx and Richard Layte

Acta Sociologica 2003; 46; 17

DOI: 10.1177/0001699303046001002

The online version of this article can be found at:
<http://asj.sagepub.com/cgi/content/abstract/46/1/17>

Published by:



<http://www.sagepublications.com>

On behalf of:

[Nordic Sociological Association](#)

Additional services and information for *Acta Sociologica* can be found at:

Email Alerts: <http://asj.sagepub.com/cgi/alerts>

Subscriptions: <http://asj.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Vocational Training and Career Employment Precariousness in Great Britain, the Netherlands and Sweden

Tomas Korpi

Stockholm University

Paul de Graaf

University of Nijmegen

John Hendrickx

University of Wageningen

Richard Layte

Economic and Social Research Institute, Dublin

ABSTRACT

The skills, qualifications and credentials generated by educational systems are strongly related to labour market attainment. The centrality of the educational system for the structuring of individuals' life chances has generated a long-lived and intense debate around the proper design of educational systems. The purpose of this article is to examine whether vocational training provided within the educational system protects graduates against employment precariousness over the life course. The extent and character of vocational training are related here to the transition from school to work, the risk of unemployment once established on the labour market, and the likelihood of finding new employment if unemployed. The data used consist of life history data from Great Britain, the Netherlands and Sweden. The results suggest that the impact of vocational training on labour market precariousness changes over people's work career. Vocational training reduces precariousness during the transition from school to work, whereas there is no difference in the impact of general and vocational education on unemployment risk once established on the labour market. Instead, among those who do become unemployed there are indications that general education may be more beneficial.

KEYWORDS: education, human capital, industrial restructuring, life course, school to work, skills, unemployment, vocational training

1. Educational systems and labour market attainment

The skills, qualifications and credentials generated by educational systems are strongly related to labour market attainment. In industrialized countries, attainment measures such as wages, occupational status and unemployment all vary substantially according to educational level. The centrality of the educational system for the structuring of individuals' life chances has generated a long-lived and intense debate around the design

of educational systems and the career development of individuals. One area that has attracted a great deal of attention is the provision of vocational training. More specifically, the question has been whether any secondary level vocational training is desirable and, if so, how it should be organized. In some countries, most notably the US, this discussion has mainly revolved around the basic usefulness of secondary level vocational training. The question has been whether there should be any form of vocational training at this level. In other countries, such as most European

countries, the discussion has instead focused on how vocational training should be organized, in particular the relative advantage of full-time vs dual systems of vocational training.

An important element in these debates has been concern over the school-to-work transition, that is the problems students encounter upon graduation (useful introductions to this literature are, e.g., CEDEFOP, 1998; Ryan, 1998, 2001). Difficulties in the early stages of a labour market career are seen as leading to an increased risk of subsequent unemployment and insecure employment. In addition, precarious labour market entry is often believed to have potential repercussions in terms of increased psychological distress, delayed family formation, increased criminality and a general lack of social integration. The relatively high levels of job-to-job mobility and unemployment experienced by young people are thus looked upon as undesirable.

The turbulence during the initial stages of labour market careers is here regarded as the result of uncertainty on the part of employers as to whether graduates from the educational system possess the skills necessary to do the job. Thus, reducing skill uncertainty is often a primary motive for educational reformers, and proposals focus on an increase in the occupational specificity of education. Such vocational training can be either company or school based systems with different strengths and weaknesses. Company based vocational training in the form of apprenticeships provides a high degree of job-specific skills – something that may simplify the school-to-work transition. However, the more broadly based training provided by schools may be more responsive to changes in the labour market and thus more adequately serve students' (long-term) career interests.

One argument against the beneficial aspects of secondary level vocational training, whether in the form of company or school based training, has been that high levels of mobility are inherent in the process of entering the labour market. Furthermore, shopping around for jobs is not only unavoidable, it is also productive. Mobility is thus seen as a searching process in which individuals acquire knowledge about the labour market and about themselves, leading to a better match between their productive capacity and the requirements of their jobs. This in turn improves employment prospects expressed in terms of wage growth (Heckman, 1994). Vocational training at the secondary level could then be seen as a waste of resources. Training should instead take place on-the-job

where it can be tailored to the needs of the employer and the capabilities of the employee.

The debate around vocational training has also been fuelled by arguments related to the competitiveness of countries. Companies in the industrialized world are claimed to be engaged in the continuous development and adjustment of high quality products and production processes. This requires a highly skilled workforce in terms of both specific occupational and general skills. Throughout their careers, workers must be able to acquire new skills, and will need to move between jobs with different skill requirements (OECD, 1994; Soskice, 1991; Thurow, 1992). This puts the focus on the educational system, in general, and the system of vocational training, in particular. Although situated at different levels, individual and national policy goals are intimately linked. This is most clearly demonstrated in discussions of the incentive structure facing pupils when they come to the end of compulsory schooling and have to choose whether to stay in education or find a job. Human capital investment in the form of general or vocational training beyond compulsory education may partly be motivated by perceived improvements in subsequent employment prospects (Soskice, 1994). If no improvement in employment prospects is likely, the incentive for young people to find training is reduced leading to a socially insufficient amount of training.

As should be clear from this review, the impact of education, in particular vocational training, on individuals' career employment prospects is a crucial aspect of the current debate. This of course implies that the relative strengths of different types of education should be examined at different stages of the work career. Nonetheless, most studies on the relationship between education and employment outcomes have examined this issue at only one stage of the life course, the transition from school to work (see, e.g., CEDEFOP, 1998; OECD, 1999; Ryan, 2001 for summaries).

This article examines whether an educational system geared towards vocational training protects graduates against employment risks over the life course. More specifically, the analyses focus on the risk of difficulties in the transition from school to work, the risk of unemployment once established in the labour market, and the risk of long-term unemployment once workers find themselves without a job. The impact of education on labour market vulnerability is studied using data from Great Britain, the Netherlands and Sweden. The

education and training systems of these three countries differ in a number of respects, and the results are therefore indicative of the extent to which the impact of vocational training is system dependent. Section 2 contains a review of theories of education as a sorting mechanism, and of hypotheses regarding the impact of education on employment precariousness at various stages of the work life career. This section also reviews the empirical evidence relating to the impact of vocational training. An overview of the educational systems of the three countries is provided in Section 3. The data and analytical strategy are introduced in Section 4, and the empirical results are presented in Section 5. The article ends with a summary and concluding discussion.

2. Training and careers – theory, hypotheses and evidence

Education may affect individual labour market vulnerability in a number of ways. Educational systems, and in particular systems of vocational training, place students in specific institutional contexts structuring the transition from school to work (see, e.g., Ashton, 1997; Müller and Shavit, 1998; Rosenbaum et al., 1990). However, for proponents of the skill development/career flexibility perspective, two other factors would seem to be of greater importance. On the one hand, the educational system confers skills, either in the form of general skills such as reading, writing and arithmetic or in the form of specific vocational skills; on the other hand, educational degrees may also signal ‘trainability’ – that is, indicate the ease with which an individual is able to learn new skills.

The possibility that education is used by employers as a signal of trainability is a central factor in job competition theory (Arrow, 1973; Thurow, 1975). The skills and knowledge required to do a particular job are seen as being extremely job specific, so specific that almost all job relevant training takes place on the job. Any job skills taught in schools are consequently deemed largely irrelevant. Instead, education signals the extent and ease to which an individual may be trained on the job; that is, it indicates the costs associated with training the person in question. More education is thus an indication of lower training costs. This, in turn, places an individual in a more favourable position in the competition for jobs, providing a position closer to the front of the job queue.

From this perspective, people with higher education are always in a more favourable position on the labour market. Their attractiveness makes them relatively secure at all stages of their labour market career. They tend to experience less difficulties in the transition from school to work, and also be less likely to experience unemployment once they have gained a foothold on the labour market. Finally, if they do end up as unemployed, they are more likely to find new employment. With regard to vocational training, the theory implies that this is largely a waste of time and resources. Instead of the acquisition of specific skills of limited value, employment prospects would be better served by investments in general skills.

Job competition theory thus downplays the value of the job skills conferred by a particular educational career. Nonetheless, the proposition that on-the-job training is the only method of learning job relevant skills is of course debatable. If it is assumed instead that some skills germane to the production process may be acquired outside the company, the type of skills taught in schools becomes crucial. One distinction here is between general and specific skills as defined by human capital theory (Becker, 1964): general skills are transferable between different contexts, while specific skills are relevant to a particular context.

If people with appropriate skills can be hired from the external labour market rather than trained internally, costs may be externalized to some extent. Hiring becomes a question of finding the person with the right skills for the job, thereby lowering training costs as much as possible. The type as well as the level of education now becomes important, and the skills acquired while in vocational training may serve as a comparative advantage in the competition for jobs. However, it should be noted that this only applies to some jobs, namely those requiring skills obtained in training. When it comes to other jobs, vocational training may instead signal additional training costs. Applicants with a vocational degree may thus be perceived as lacking the general learning skills often associated with non-vocational training. For those with vocational degrees searching for jobs beyond the limits of their training, their degree may turn out to be a disadvantage rather than an advantage.

The theoretical review highlighted the importance of the role of educational qualifications as a signal either of general trainability or of the possession of specific skills. This idea

may in turn be related to educational systems, and used for the formation of hypotheses regarding differences in the relationship between qualifications and career employment risks in various countries. If schooling only sorts out young people in respect to trainability, those with the lowest levels of educational qualifications will be the ones with the greatest precariousness, whatever the contents of the educational system. If, on the other hand, vocational training also provides some job relevant skills, educational systems that focus on vocational skills may protect graduates from labour market precariousness.

One could thus hypothesize that the specific skills that trainees acquire in the course of company based training programmes or clearly defined occupational courses may increase the possibilities of gaining employment. A high degree of specific training would then be associated with lower risks of entering unemployment at the time of labour market entry.¹ Within each country, one could thus expect that:

H1 Among people with the same level of education, those with vocational training are less vulnerable in the early stages of their occupational career.

This initial difference in unemployment risks may however be reversed in later stages of the career. The limited transferability of skills may lead, for example, to a greater risk of unemployment later in people's life course. Structural change may thus make some (company) specific skills obsolete – something less likely to happen to general skills. Likewise, among those who become unemployed, the limited transferability of company based skills may lead to greater difficulties in finding new employment.² Thus:

H2 Among people with the same level of education, those with vocational training are more vulnerable in later stages of their occupational career.

These hypotheses are based on the effect of some vocational training versus none. However, a second issue is the impact of different types of vocational training. In line with H1 and H2, it could therefore be expected that:

H3 Among students with vocational training, those with a more specific training will experience a smoother transition from school to work.

H4 Among students with vocational training, those with a more specific training are more vulnerable in the later stages of an occupational career.

The extent to which vocational training actually provides an advantage over people's work career is not clear. Analyses of the association between vocational training and long-term labour market attainment are relatively rare. There are, of course, a large number of studies on people who return to education, yet most of these focus on the impact of the level of education on wages. There are also a number of studies on the role of education in intra-generational class mobility. Nonetheless, in general, these studies do not examine the specific transitions underlying the aggregate patterns observed. The existing comparisons of educational systems as well as those of systemic differences within countries have tended to focus on the school-to-work transition, with special interest attached to the impact of vocational training.

One interesting study of the importance of the educational system for labour market transitions is that of Allmendinger (1989). She examined the impact of education, measured both as years of schooling and as degree attained, in the US, Norway and the former West Germany. Studying the transition from school to work and the extent of later job-to-job mobility, Allmendinger found education was associated with significantly greater mobility in the US than in the other two countries. This she mainly ascribed to the lack of vocational training and great variability of the American educational system.

Building upon the research by Allmendinger, Müller and Shavit (1998) studied the relationship between educational qualifications and various labour market outcomes in the transition from school to work in 13 countries. Although their general conclusion echoes Allmendinger's, i.e. that the effects of education differ depending on institutional context, they found little variation in the relationship between education and unemployment in the course of the transition from school to work. In almost all countries, a higher level of education was associated with a lower risk of unemployment. Likewise, in almost all countries, vocational education lowered the risk of unemployment more than general education. Exceptions in the latter case were the US and Ireland, two countries with little vocational training, in which vocational education seemed on a par with general education.

Related to this literature is the research on the impact of various forms of vocational training on early labour market attainment. Elias et al. (1994) studied the wages of secondary school

graduates (approximate age 23) in Great Britain and Norway. While there was little variation in wages between different, primarily school based, vocational training courses in Norway, the completion of an apprenticeship was associated with a higher wage in Great Britain. A similar early advantage is reported by Winkelmann (1996a). He compared the probability of employment and unemployment immediately after the acquisition of a degree in Germany. The risk of unemployment was substantially lower among those having completed an apprenticeship than among those having obtained any other qualification.

These results suggest that vocational training does affect early labour market attainment, and that attainment improves as the specificity of training increases. Nonetheless, this conclusion is to some extent challenged by results from analyses of long-term effects of training on earnings. Thus, Winkelmann (1996b) studied the earnings effect of apprenticeships vs other forms of secondary school vocational training in Germany. In contrast to the results found on the impact on immediate post-school employment reported earlier, he found no differences between the various forms of vocational training. On a similar note, Harhoff and Kane (1997) compared the earnings of secondary school graduates in the US and Germany. While the latter is known for its apprenticeship/dual system of vocational education, the former has very little vocational education at the secondary level. Nonetheless, despite these systemic differences, they found no differences in earnings and the development of earnings among former students.

In contrast to the studies mentioned initially, these results would seem to indicate that the content of the educational system is of rather limited significance; the impact of various types of education is basically the same across systems. However, Harhoff and Kane (1997) noted that their result of very similar wage effects of education in Germany and the US may be the result of very different mobility patterns. Wage gains in the German context may thus be the outcome of low mobility and tenure based wage increases. In the context of the US labour market, wage increases may on the other hand be the result of high mobility and resulting job wage gains (cf. the conclusions of Allmendinger, 1989).

This suggests that education and educational systems matter in relation to some outcome variables, but not in relation to others.

Increasing specificity may thus have some short-term advantages, yet there are indications that these quickly evaporate. However, so far there are no signs of specific training turning into a long-term disadvantage.

3. The institutional background – education and training in Great Britain, the Netherlands and Sweden

The theoretical discussion highlights the potential importance of the contrast between general and specific training. As noted earlier, this distinction can be applied to both general vs vocational education and to company vs non-company specific vocational training. This division may in turn be used to categorize different educational courses, as well as educational systems in general. The focus here is on the extent and type of vocational training provided by the course/system. While most educational systems include general as well as vocational training, there is much variation in the extent to which vocational training is emphasized and the way it is structured. One can thus make a distinction between courses/systems that emphasize general skills and those that stress specific skills; the latter may in turn be subdivided into company specific skills and general occupational skills. In the case of company specific and general occupational skills, the relative emphasis is visible in the amount of training that is carried out within companies as well as in the amount of influence business has on the training carried out within schools. While vocational training in almost all educational systems includes some company specific training, some systems include more of this element than others.

In Sweden, the reforms of the late 1960s produced a fairly homogeneous educational system.³ This was particularly the case in compulsory schooling, that is up to the age of 16, where the curriculum was largely identical for all students. Furthermore, educational tracks within the secondary level were limited in number and focused on either traditional academic subjects or on broad vocational skills. The latter were almost exclusively taught within the confines of school, actual company based training periods being of fairly short duration. Apart from vocational skills, these tracks also included general skills such as reading and writing. As for apprenticeships, they did exist but only in small numbers.⁴ The division between vocational and

academic tracks was also part of university level education, with vocational skills again taught mainly within schools.

In contrast, the educational system of the Netherlands is more differentiated, with substantial tracking and a number of specialized vocational skills being taught. This system has also been in place since the late 1960s. An important branching off point lay within compulsory schooling at age 12. At this point, students choose between educational tracks leading either to university education or vocational training. Like vocational education in the Swedish system, vocational training in the Netherlands was mainly carried out on school premises. However, whereas vocational skills in the Swedish system were primarily broad occupational skills, the skills taught within the vocational tracks in the Netherlands were much more specialized. Vocational training in the Netherlands has indeed been said to lead to a degree of occupational specificity on a par with the apprenticeship systems of Germany and Switzerland (Müller and Shavit, 1998).⁵ In addition, apprenticeships were much more common than in Sweden. The tertiary system finally encompassed both vocational and traditional academic degrees.

The British educational system has changed more than the other two during the last decades. After the reforms of the mid-1960s, students were tracked at the age of 11 years. Tracking here mainly consisted of the choice between a high and a low level general track.⁶ The high level track led to graduation at age 18, often followed by university education. The low track led to graduation at 16, and did not provide for higher level education. Up until the mid-1980s, both tracks were general in character. Vocational skills were obtained through apprenticeships outside the educational system. These were quite common, yet often failed to provide a formal qualification. However, in the first half of the 1980s, industrial restructuring reduced the number of apprenticeships outside the educational system and further reforms made it possible to acquire some vocational qualifications as part of the lower track.⁷ As was the case in Sweden and the Netherlands, there are both vocational and academically oriented degrees offered at university level.⁸

The education and training systems of the three countries thus differ in a number of respects, and the results are indicative of the extent to which the impact of vocational training is system dependent. In addition, there is one

particularly interesting system difference with regard to intermediate level vocational training in the Netherlands and Sweden; whereas the Swedish system was designed to generate fairly broad occupational skills, the Dutch system has been claimed to produce more narrow skills. A comparison of the Dutch and Swedish results could consequently be indicative of the impact of the degree of specificity in vocational training.

It may also be noted that when it comes to educational reform, the period between 1975 and the early 1990s was a period of relative constancy in the Netherlands and Sweden. This is therefore the period under analysis in this article. A comparison of the prevalence of vocational education in Great Britain, the Netherlands and Sweden during these two decades can be found in Table 1. This shows the distribution of educational degrees in the three data sets used in our analyses, classified according to the CASMIN schema (both the data and the educational classification are described later in more detail). As is clear from the two rows at the bottom of the table, while the overall figures for the Netherlands and Sweden were very similar, the extent of vocational training provided within the British educational system differed markedly from that of the Dutch and Swedish. Whereas slightly more than half of the students left the latter two systems with a vocational degree of some sort, this was only the case with a third of their British counterparts.

Closer inspection of Table 1 shows this mainly to be due to the large number of students leaving British schools with only the lowest level of education, here labelled elementary general. At the intermediate level, the proportion with vocational training in the three countries is roughly equal. Finally, a notable difference at the tertiary level is the relatively large number of Dutch students with a vocationally oriented degree.

4. Data and method

The analyses here focus on the impact of educational qualifications on employment precariousness in three different educational systems. The data used come from four different representative surveys. The data from Great Britain come from the *Employment in Britain* survey carried out in 1992 with data on c. 4800 individuals (Gallie et al., 1998). The data for the Netherlands are part of the survey *Households in the Netherlands*, a survey based on c. 3300 respondents carried out

Table 1. *Vocational training in Great Britain, the Netherlands and Sweden: graduates between 1975 and approx. 1992 (% by country and educational level)*

Educational level	Great Britain		Netherlands		Sweden	
	%	N	%	N	%	N
Elementary general	81.4	978	26.5	125	39.2	69
Elementary vocational	18.6	224	73.5	347	60.8	107
Total	100	1202	100	472	100	176
Intermediate general	44.7	199	45.2	444	39.9	192
Intermediate vocational	55.3	246	54.8	538	60.1	289
Total	100	445	100	982	100	481
Tertiary general	62.8	362	27.6	137	59.1	114
Tertiary vocational	37.2	214	72.4	359	40.9	79
Total	100	576	100	496	100	193
Total general	69.2	1539	36.2	706	44.1	375
Total vocational	30.8	684	63.8	1244	55.9	475
Grand total	100	2223	100	1950	100	850

Sources: *Employment in Britain, Households in the Netherlands, Swedish Level of Living Survey, 1991.*

in 1995 (Kalmijn et al., 1996). Finally, the Swedish data come from two surveys. The first is the 1991 wave of the *Level of Living Survey*, covering a sample of c. 6000 respondents (Jonsson and Mills, 2001). Since there were only a very limited number of unemployment spells observed in this data set, the data from the *Level of Living Survey* in the analysis of re-employment have been augmented with data from the *Longitudinal Study among Unemployed*. This is a sample of c. 650 individuals who were unemployed in 1992 and followed up in 1993 (Sidebäck and Stenberg, 1997).

These surveys are all retrospective life course surveys carried out in the early to mid 1990s. Furthermore, all surveys include detailed information on the educational career of the respondents. The surveys also contain work histories covering the full work career, and distinguish between all periods of employment and unemployment with events recorded on a monthly basis.⁹ There is thus a high degree of comparability with respect to the type of information available.

In accordance with the different hypotheses presented earlier, the analysis deals with the transition from school to work, the risk of unemployment once established on the labour market, and finally the possibility of finding new employment if unemployed. These transitions have all been analysed using Cox proportional hazard rate models.¹⁰

In the analysis of the school-to-work transition, people at risk were all those who left school no earlier than 1975 and no later than the year of the survey and who were between 16

and 32 years of age at the time of graduation. The date of graduation here refers to the date of the receipt of the highest educational degree. Interest has centred on the length of time it takes to find a stable foothold in the labour market after graduation. Rather than examining the rate of transition into any job, a certain employment stability has been required for the transition to work to be considered successful. In this analysis, the dependent variable is the rate of transition into a job lasting at least 12 months, with duration measured between school exit and employment entry. Although a lower limit for stable employment of 12 months is somewhat arbitrary, it would at least seem to guarantee that a fair degree of employment stability has been obtained. Finally, periods of military service have been excluded from the period at risk, and the spells have been censored at 36 months.¹¹

The subsequent analysis focused on the risk of becoming unemployed once such a foothold had been established. People at risk were those who left school no earlier than 1975 and no later than the year of the survey, who graduated between 16 and 32 years of age, and who had found a stable job. That is, the analysis does not measure the risk of unemployment at very early stages of the work career. The dependent variable has been the rate of transition into unemployment (with a duration of at least one month), and duration has been measured between entry into stable employment and entry into unemployment.

The final analysis examines the re-employment probability among those becoming unemployed after having established themselves in the

labour market. People at risk thus all left school no earlier than 1975 and no later than the year of the survey, graduated between 16 and 32 years of age, and became unemployed after having found a stable job. Again, this excludes the very early stages of the work career. The dependent variable is the rate of transition from the first spell of unemployment and into employment, and the duration of the spell is that of the period of unemployment. Here, spells have again been censored at 36 months.

All analyses thus examine future career events conditional on previous career events (i.e. finding stable employment after leaving school, becoming unemployed after finding stable employment, and finding new employment after becoming unemployed). For each of these three transitions, a common model for all three countries has been estimated. This allows the differences between general and vocational training within as well as between countries to be tested statistically. National variations in the business cycle have been taken into account through the inclusion of time varying measures of the standardized unemployment rate as measured by the OECD. In addition, country dummies have been used as controls for other national factors influencing the transitions. These models have been estimated separately for men and women. As is the case in the vast majority of these types of studies, the lowest educational category in each country has been used as a reference point; that is, the transition rate of the least qualified has provided the baseline against which the mobility of other educational categories has been compared.

As noted earlier, the level and type of education here refers to the highest degree obtained. The basis for the categorization of educational degrees is the so-called CASMIN schema for comparative classification of educational levels (Müller et al., 1989). This schema was developed as an explicit attempt to arrive at a comparative educational scale, and focuses on the hierarchical differentiation of general education as well as the distinction between general and vocational education.¹² The seven-category version of the CASMIN schema was used (see Table 2). This distinguishes between three levels of education; elementary, secondary and tertiary. At all three levels, it separates between general and vocational education and, at the secondary level, a further distinction is made between lower and upper level general education.

While this type of scale is a prerequisite for comparative analyses, there are always potential

validity problems inherent in the use of such classifications. One drawback with the CASMIN scale is that the distinction between general and vocational education not only involves a differentiation according to the type of training, but also often one of the quantity of training. This is most clearly evident at the elementary level, where vocational training involves some training in addition to compulsory schooling. It is also the case at the tertiary level, where vocational training would seem to be associated with less training. However, the problem would seem to be less acute at the secondary level, in part because general education there is partitioned into a low and a high level. The CASMIN scale would therefore appear appropriate in the present context, since much of the debate about vocational training has focused specifically on the secondary level. Nevertheless, these issues should be kept in mind when interpreting the results.

As for other factors influencing the various transitions, sex, immigrant background, age, social class and employment experience were taken into account in the analysis. Age was measured either at the entry into the labour force, entry into stable employment, or entry into unemployment. Ethnicity was defined as having at least one parent with non-native citizenship. Social class refers to a five-class version of the EGP class scheme which distinguishes between self-employed, service, routine non-manual, skilled and unskilled manual workers. In the analyses of unemployment entry, class was measured as a time varying variable indicating class of present job. In the analyses of unemployment exit, class was measured as class of last job. Finally, employment experience was measured in years.

5. Education and employment risks during the work career

5.1 The school-to-work transition

The impact of education on the school-to-work transition in the three countries is examined in Table 3. This table shows the results from two models, a basic model with the variables education, country, national unemployment rate, sex, ethnicity and age as well as an interaction model in which the basic model has been augmented with an education–country interaction.

The basic model shows the transition rate increasing with educational level. The increase is systematic, but non-linear. The advantage associated with increasing education attainment is

Table 2. *The CASMIN educational schema*

Qualification	Description
Elementary general	This is the social minimum of education, i.e. the minimal level that individuals are expected to have obtained. It generally corresponds to the level of compulsory education.
Elementary vocational	Basic vocational training above and beyond compulsory schooling.
Intermediate vocational	All types of secondary school programmes in which general intermediate schooling is combined with vocational training.
Intermediate lower general	Academic or general tracks at the secondary level.
Intermediate higher general	Full maturity certificates (e.g. Abitur, Matriculation, Baccalauréat, A-levels).
Tertiary vocational	Lower level tertiary degrees, generally of shorter duration and with a vocational orientation (e.g. technical college diplomas, social worker, or non-university teaching certificates).
Tertiary general	The completion of a traditional, academically oriented university education.

Source: From Müller and Shavit.

Table 3. *Education and the rate of transition from school to stable employment in the Netherlands, Sweden and Great Britain: Cox regression (SEs in parentheses)*

Educational level	Basic model		Netherlands		Interaction model Sweden		Great Britain	
	Voc.	Gen.	Voc.	Gen.	Voc.	Gen.	Voc.	Gen.
Elementary	0.30 (.05)		0.26 (.11)		0.10 (.15)		0.56 (.12)	
Intermediate	0.35 (.05)	0.17 (.07)	0.25 (.11)	0.13 (.12)	0.34 (.12)	0.02 (.15)	0.60 (.12)	
		0.22 (.05)		0.09 (.12)		0.09 (.13)		0.58 (.12)
Tertiary	0.40 (.05)	0.33 (.06)	0.27 (.12)	0.29 (.13)	0.52 (.17)	0.46 (.14)	0.65 (.12)	0.51 (.12)
Log likelihood	-32712.3				-32704.7			

Notes: Stable jobs are jobs lasting at least 12 months. Figures pertain to those who left school no earlier than 1975, and who were between 16 and 32 years of age at the time of graduation. Total spells = 5023 (GB = 2223, NL = 1950, S = 850), total number of failures = 4118 (GB = 1850, NL = 1504, S = 764). Spells censored at 36 months. Transition rates for the interaction model calculated from the education, country, and education and country interaction terms included in the regression. In addition to education and country, the models also include the variables national unemployment rate (time varying), sex, ethnicity, and age.

thus only perceptible within 'educational type'. The gradient is strongest within general education, and it is also here that the stepwise increase is most clear-cut. The only difference within vocational education that is fairly well established is that between the elementary and the tertiary level (p for equal effects = .08). In contrast, apart from the distinction within the intermediate level, all differences related to general education are significant at or below this level.

It is also clear from Table 3 that vocational students find stable employment somewhat easier

than graduates with general degrees. Within each educational level, the transition rate associated with vocational training is higher than that for general education. The p value for equal effects, a conservative test given that the hypothesis is that the transition rate for vocational training is greater than that for general education, is in most cases below .01. The only exception is at the tertiary level, where no significant difference was found. Nonetheless, the p value for a combined test of equal effects at the intermediate and tertiary level was less than .01, so the hypothesized individual level

difference between vocational and general education is unambiguously supported.¹³

In the interaction model, the average (cross-country) effects of vocational and general education are broken down into within-country effects. With some exceptions, these results corroborate the conclusions from the basic model and a LR-test also indicates that the educational effects are identical in the three countries ($p = .17$). In particular, these results show that the advantage associated with vocational training tends to be evident within each country. In almost all cases, the estimate relating to vocational training indicates a higher rate of transition than the estimate for general education at the same level.

The statistical significance of these differences varies. At the elementary level, the differences are unequivocal in Great Britain and the Netherlands but not in Sweden. At the intermediate level, they are clear in Sweden but not in Great Britain and the Netherlands. At the tertiary level, there is no clear difference between vocational and general education within any of the three countries. Although the level of significance in each individual comparison is less than desired, the fact that the transition rate associated with vocational training is higher in all three countries and at all levels would seem to indicate that graduates with vocational training do find stable employment quicker than those with a comparable level of general education.

The type of vocational training is also related to the rate of transition into stable employment, although in a manner contrary to that tentatively hypothesized. Rather than the graduates from intermediate level vocational training in the Netherlands having a higher transition rate into stable employment than their Swedish counterparts, the results suggest the opposite. However, this result is associated with large uncertainty (the p value for equal effects is .26), indicating that the transition rates are roughly the same.

The models have also been estimated for men and women separately (results not shown). These results basically reiterate the ones discussed earlier. Among both men and women, there is a tendency for transition from school to work to become easier with increasing educational level. Likewise, among both sexes there is a tendency for graduates with vocational training to find stable employment earlier than graduates with general education. Although evident among both sexes, these trends are on the whole more explicit among women than among men.

5.2 The subsequent risk of unemployment

Turning to the risk of unemployment, Table 4 displays the impact of education on the risk of experiencing at least one spell of unemployment after becoming established on the labour market. Two models are again presented, a basic additive model and one with an education-country interaction term included. In addition to the education and country variables, both models also incorporate the variables sex, ethnicity, age, the national unemployment rate (time varying) and social class (also time varying).

The basic model again shows a strong association between education and mobility. There is a clear inverse relationship between level of education and risk of unemployment, both in general and within educational type. The gradient again appears more pronounced within general education, yet the differences within vocational education are also fairly well established. Apart from the distinctions between elementary and intermediate vocational and between lower and higher intermediate general all differences are significant at or below the 5 per cent level.

The distinction between general and vocational education is instead of less importance. While the risk of unemployment in most cases is greater among graduates with general degrees, rather than the hypothesized advantage of general over vocational education, these differences are not clearcut. The p value for the combined test of equal effects at the intermediate and tertiary level (see note 12) is .36. Educational level thus remains important, educational type does not.

The educational estimates have once more been broken down into country specific education effects. These interaction results show much the same pattern as those obtained with the basic model, and the LR-test again indicates that the educational effects are equal in the three countries ($p = 0.29$). The only instance where a clearly lower unemployment risk is associated with general education is at the intermediate level in Sweden. In none of the remaining comparisons is there evidence of an unequivocally lower unemployment risk for general education.

The comparison between the Dutch and Swedish systems of intermediate level vocational training also run counter to what was conjectured. Rather than Dutch graduates having a higher risk of unemployment, they run a lower risk of becoming unemployed.

Again, separate analyses have been carried

out for men and for women (not shown) and among both men and women the pattern of effects again corresponds fairly closely to the overall effects presented in Table 4.

5.3 The probability of re-employment if unemployed

The last part of the analysis focuses on the probability of finding a new job in case of

unemployment. In addition to the education and country variables, the two models presented in Table 5 include the variables sex, ethnicity, age, the national unemployment rate (time varying), and social class of last job. Before examining the results, it should be noted that unemployment is a rather rare event in the Netherlands and Sweden and that, as a consequence, the number of observations is limited in

Table 4. *Education and the risk of unemployment in the Netherlands, Sweden and Great Britain: Cox regression (SEs in parentheses)*

Educational level	Basic model		Netherlands		Interaction model Sweden		Great Britain	
	Voc.	Gen.	Voc.	Gen.	Voc.	Gen.	Voc.	Gen.
Elementary	-0.63 (.12)		-0.23 (.32)		0.60 (.43)		0.98 (.30)	
Intermediate	-0.86 (.13)	-0.52 (.22)	-0.76 (.35)	-0.02 (.34)	0.31 (.36)	-0.30 (.57)	0.82 (.30)	
		-0.91 (.16)		-0.45 (.38)		-0.33 (.51)		0.80 (.32)
Tertiary	-1.47 (.19)	-1.32 (.18)	-1.26 (.46)	-1.63 (.77)	-1.60 (1.06)	-0.55 (.56)	0.32 (.33)	0.43 (.32)
Log likelihood	-5688.4				-5681.9			

Notes: Figures pertain to those who left school no earlier than 1975, who were between 16 and 32 years of age at the time of graduation, and had found a job lasting at least 12 months, within 36 months after graduation. Total spells = 4300 (GB = 1828, NL = 1612, S = 860), total number of failures = 754 (GB = 583, NL = 109, S = 62). Transition rates for the interaction model calculated from the education, country, and education and country interaction terms included in the regression. In addition to education and country, the models also include the variables unemployment rate (time varying), sex, ethnicity, age, and class (time varying).

Table 5. *Education and the rate of re-employment in the Netherlands, Sweden and Great Britain: Cox regression (SEs in parentheses)*

Educational level	Basic model		Netherlands		Interaction model Sweden		Great Britain	
	Voc.	Gen.	Voc.	Gen.	Voc.	Gen.	Voc.	Gen.
Elementary	0.04 (.14)		-0.26 (.29)		0.78 (.37)		0.52 (.25)	
Intermediate	0.15 (.16)	0.28 (.30)	0.25 (.37)	-0.02 (.34)	0.94 (.32)	1.70 (.70)	0.56 (.28)	
		0.44 (.16)		-0.19 (.41)		1.21 (.45)		0.99 (.27)
Tertiary	0.49 (.15)		0.54 (.33)		1.68 (.40)		0.85 (.25)	
Log likelihood	-3117.5				-3113.2			

Notes: Figures pertain to those who left school no earlier than 1975, who were between 16 and 32 years of age at the time of graduation, had found a job lasting at least 12 months within 36 months after graduation, and later became unemployed. Total spells = 774, number of failures = 525 (GB = 399, NL = 69, S = 57). Spells censored at 36 months. Transition rates for the interaction model calculated from the education, country, and education and country interaction terms included in the regression. In addition to education and country, the models also include the variables unemployment rate (time varying), sex, ethnicity, age, class, and experience.

these two countries. This introduces an extra degree of uncertainty into this analysis and also prevents a more detailed analysis of education at the tertiary level, as well as the estimation of separate models for men and women. This analysis will therefore be primarily explorative in character.

Regarding the educational effects there is a clear positive relationship between re-employment probability and educational level. It is difficult to judge the relative strength of the relationship within vocational as opposed to general educational, as data limitations necessitated the merger of the two categories at the tertiary level.

Of particular interest, however, is the fact that the bonus associated with vocational training now seems to have vanished completely. At the elementary level, there is no clear advantage attached to vocational training, even though it generally implies more education. In addition, at the intermediate level the point estimates suggest that general education is associated with a higher re-employment rate than vocational training. While this result is far from decisive (p value for the conservative test of equal effects is .35), in the light of the limited number of observations, this would nevertheless suggest some weak support for the original hypotheses.

The country specific effects show that in all three countries the positive association between educational attainment and re-employment is more distinct in the case of vocational than general education. Although the LR-test indicates that the hypothesis of equal educational effects in the three countries cannot be rejected ($p = .47$), the interaction model also shows that intermediate level general education is associated with a higher exit rate in both Great Britain and Sweden. It is only in the Netherlands that this is not the case. The Great Britain and Swedish results indicating a higher exit rate for general education are primarily suggestive, in particular in the Swedish case with p values for equal effects being .10 in Great Britain and .49 in Sweden. Nevertheless, it is interesting to note that, in the only country in which there are a sizable number of observations, general education at this stage of the career appears more beneficial than vocational training. The final hypothesis involved intermediate level vocational training in the Netherlands and Sweden. The transition rate here is substantially higher in Sweden (p value for equal effects = .08).

6. Discussion: education and employment precariousness

The impetus for this article came from the strong association between educational qualifications and subsequent labour market attainment, as well as from the ongoing lively debate in many countries about the design of the educational system. Against this background, the purpose of this article has been to examine the importance of the extent and type of national vocational training for employment risks over the life course.

The results show substantial differences in employment precariousness among graduates in Great Britain, the Netherlands and Sweden. As is well known from previous research, precariousness is generally inversely related to educational attainment. This is the case for both the risk of unemployment as well as the risk of becoming long-term unemployed and, to some extent also, for the school-to-work transition. In other words, the stratification of the educational system and individuals' attainments within this system is consistently related to precariousness at various stages of the work career.

In contrast, the results from the analyses suggest that the impact of vocational training on labour market precariousness varies over the work career. The basic hypothesis in this article has been that a greater degree of specific training would be advantageous at the initial stage of a career, as it would give a clear indication of skills when other information was lacking. However, in later stages more general training would indicate a greater potential for skill acquisition, a useful signal when career flexibility is required. While data limitations prevent a conclusive analysis, the results are still suggestive of such a shift in relative advantageousness over the life course.

Thus, at the start of a work career, any form of vocational training is beneficial. However, once employed, the type of training previously acquired is of little importance. Somewhat surprisingly, there is a reduced unemployment risk related to narrow vocational training. This may indicate that the skill investment associated with company specific training offers some additional protection against unemployment. Finally, general education appears to gain in importance during unemployment and, to some extent, this also applies to broad occupational training. This may imply that flexibility and/or trainability facilitate employment in new occupations.

In a sense, this interpretation of the results is very traditional. General education may provide

numerous transferable but few specific skills, broad occupational training supplies both transferable and specific skills, while narrow company and job specific training offers many specific but few transferable skills. This interpretation also corresponds quite well to earlier results. As in previous research, this article has shown that vocational training does affect employment prospects upon graduation. Furthermore, for the large group of individuals who manage to establish themselves on the labour market and who do not become unemployed, no lasting impact of vocational training is evident. In contrast, no previous research on the relative impact of vocational training among unemployed has been discovered, and these results suggest some potentially interesting trade-offs between general, broad occupational and narrower specific training.

In the light of the large literature on the importance of differences in educational systems, it is interesting to note in this context that in none of the three analyses was the hypothesis of equal effects rejected. Rather than documenting differences, these analyses thus emphasize similarities.

It should nevertheless be noted that this interpretation is somewhat speculative. The results are not always unambiguous and, in particular, the analysis of unemployment in the Netherlands and Sweden would have benefited from greater sample sizes. Additional information on the type of training obtained by vocational students would also have been desirable. Nonetheless, this is a first analysis along these lines and, if nothing else, the results would seem to call for further research. In addition to addressing the shortcomings of the data, future research could examine alternative outcomes such as intersectoral mobility and wages. The problem of balancing short- and long-term goals would seem to be an issue of great interest, for individuals as well as for societies.

Notes

1. Trainees may moreover increase their employment probabilities by making an impression on employers through the display of high levels of motivation etc., the training programme thus lowering the employers' uncertainties about the trainees' productivity.
2. Trainees who fail to gain employment by companies where their training took place may also become 'stigmatized', the training program again providing employers with additional information about trainees' productivity.
3. For more detailed descriptions of various aspects of education and training in the three countries, see, e.g., CEDEFOP (1991) and Ni Cheallaigh (1995).

4. While there have been no great changes at the compulsory level, substantial changes have taken place at the secondary level in the late 1990s.
5. Again, as in Sweden, in the Netherlands there were some noticeable changes at secondary level in the late 1990s.
6. Prior to the development of the comprehensive school, these tracks corresponded to the grammar and the secondary modern school. However, the tracking at age 11 remained the same within the comprehensive school, as the O-level and A-level exams and the corresponding difference in school leaving age remained.
7. Like the secondary system in the other two countries, the system in Great Britain also went through a number of changes in the early 1990s.
8. In addition to the public educational system, there is a significant elitist system of private schools.
9. In the Swedish case, the work histories in the LLS and the LSU cover the career of the respondents from their first job that lasted at least six months.
10. In addition, Weibull and Loglogistic hazard rate models have been estimated, yielding the same basic conclusions as those reported later.
11. As the Swedish work histories start with the first job lasting six months, episodes of military service falling between graduation and the six-month job have not been recorded. However, information on military service is found in 33 percent of the male work histories, and in an additional 19 percent of the cases, the work biography started prior to graduation. Nonetheless, this is likely to lead to an overestimate of the transition period among Swedish males, something which should be kept in mind when interpreting the results.
12. The schema was developed within the project Comparative Analyses of Social Mobility in Industrial Nations, hence the acronym CASMIN.
13. That is a test of the combined hypothesis $\text{Int. voc.} = \text{Int. low. gen.}, \text{Int. voc.} = \text{Int. high. gen.}, \text{and Tert. voc.} = \text{Tert. gen.}$.

Acknowledgements

The work on this paper was initiated as a part of the project 'Employment Precarity, Unemployment, and Social Exclusion' funded by the EU under the Targeted Socio-Economic Research Programme. See Gallie and Paugam (2000) for other results. In addition to the project members, we would like to thank Markus Gangl and Lena Schröder as well as two anonymous reviewers for comments.

References

- Allmendinger, J. (1989) *Career Mobility Dynamics: A Comparative Analysis of the United States, Norway, and West Germany*. Berlin: Max Planck Institute for Human Education and Development.
- Arrow, K. J. (1973) 'Higher Education as a Filter', *Journal of Public Economics* 2: 193–216.
- Ashton, D. (1997) 'Labour Market Approaches to the Study of the Relationship between Education and (Un)Employment in the United Kingdom', in A. Jobert, C. Marry, L. Tanguy and H. Rainbird (eds) *Education and Work in Great Britain, Germany and Italy*, pp. 143–59. London: Routledge.
- Becker, G. (1964) *Human Capital*. New York: Columbia University Press.
- CEDEFOP (1991) *Structures of the Education and Initial Training Systems in the Member States of the European Community*. Luxembourg: Office for Official Publications of the European Communities.

- CEDEFOP (1998) *Training for a Changing Society: A Report on Current Vocational Education and Training Research in Europe 1998*. Luxembourg: Office for Official Publications of the European Communities.
- Elias, P., Herneas, E. and Baker, M. (1994) 'Vocational Education and Training in Britain and Norway', in Lisa M. Lynch (ed.) *Training and the Private Sector: International Comparisons*, pp. 283–99. Chicago: University of Chicago Press.
- Gallie, D. and Paugam, S. (2000) *Welfare Regimes and the Experience of Unemployment in Europe*. Oxford: Oxford University Press.
- Gallie, D., White, M., Yuan Cheng and Tomlinson, M. (1998) *Restructuring the Employment Relationship*. Oxford: Clarendon Press.
- Harhoff, D. and Kane, T. J. (1997) 'Is the German Apprenticeship System a Panacea for the U.S. Labor Market?', *Journal of Population Economics* 10: 171–96.
- Heckman, J. J. (1994) 'Is Job Training Oversold?', in *The Public Interest*, 115: 91–115.
- Jonsson, J. O. and Mills, C. (2001) *Cradle to Grave: Life-Course Change in Modern Sweden*. Durham: Sociology Press.
- Kalmijn, M., Bernasco, W. and Weesie, J. (1996) *Codebook Household in the Netherlands 1995*. Utrecht: ICS Data-Archive.
- Müller, W. and Shavit, Y. (1998) 'The Institutional Embeddedness of the Stratification Process: A Comparative Study of Qualifications and Occupations in Thirteen Countries', in W. Müller and Y. Shavit (eds) *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*, pp. 1–48. Oxford: Clarendon.
- Müller, W., Lüttinger, P., König, W. and Karle, W. (1989) 'Class and Education in Industrialised Nations', *International Journal of Sociology* 19(3): 39.
- Ni Cheallaigh (1995) *Apprenticeships in the EU Member States: A Comparison*. Berlin: CEDEFOP.
- OECD (1994) *The OECD Jobs Study: Evidence and Explanations*. Paris: OECD Publications.
- OECD (1999) *Preparing Youth for the 21st Century: The Transition from Education to the Labour Market*. Paris: OECD.
- Rosenbaum, J. E., Kariya, T., Settersten, T. and Maier, T. (1990) 'Market and Network Theories of the Transition from High School to Work: Their Application to Industrialized Societies', *Annual Review of Sociology*: 263–99.
- Ryan, P. (1998) 'Is Apprenticeship Better? A Review of the Economic Evidence', *Journal of Vocational Education and Training* 50: 289–325.
- Ryan, P. (2001) 'The School-to-Work Transition: A Cross-National Perspective', *Journal of Economic Literature* 39: 34–92.
- Sidebäck, G. and Stenberg, S.-A. (1997) *Codebook for the Longitudinal Study among Unemployed*. Stockholm: Swedish Institute for Social Research.
- Soskice, D. (1991) 'The Institutional Infrastructure of International Competitiveness: A Comparative Analysis of UK and Germany', in A. B. Atkinson and R. Brunetta (eds) *Economics for the New Europe*, pp. 45–66. London: Macmillan.
- Soskice, D. (1994) 'Reconciling Markets and Institutions: The German Apprenticeship System', in L. M. Lynch (ed.) *Training and the Private Sector: International Comparisons*, pp. 25–60. Chicago: University of Chicago Press.
- Thurow, L. (1975) *Generating Inequality: Mechanisms of Distribution in the U.S. Economy*. New York: Basic Books.
- Thurow, L. (1992) *Head to Head: The Coming Economic Battle among Japan, Europe, and America*. New York: Morrow.
- Winkelmann, R. (1996a) 'Employment Prospects and Skill Acquisition of Apprenticeship-Trained Workers in Germany', *Industrial and Labor Relations Review* 49: 658–72.
- Winkelmann, R. (1996b) 'Training, Earnings and Mobility in Germany', *Konjunkturpolitik* 42: 1–24.

Tomas Korpi is a researcher at the Swedish Research Council and at the Swedish Institute for Social Research. Research interests include social stratification, in particular unemployment, and public policy. Recent publications include *Acta Sociologica* (2001), *European Sociological Review* (2001) and *Work, Employment, and Society* (2001). Address: Swedish Institute for Social Research, Stockholm University, S-106 91 Stockholm, Sweden. [email: tomas.korpi@sofi.su.se]

Paul de Graaf is an associate professor at the Department of Sociology, Nijmegen University. His research interests include social stratification and mobility, education and divorce. Recent publications include *Sociology of Education* (2001), *British Journal of Sociology* (2001), *European Sociological Review* (2001), *European Societies* (2002) and *Social Forces* (forthcoming). Address: University of Nijmegen, PO Box 9108, 6500 HK Nijmegen, Netherlands. [email: pdegraaf@mailbox.kun.nl]

John Hendrickx is an assistant professor at the Department of Management Studies at the University of Wageningen. His research interests include social stratification, labour market studies and statistical research methods. Address: Management Studies Group, Wageningen University, Hollandseweg 1, NL-6700 HB Wageningen, Netherlands.

Richard Layte is a researcher at the Economic and Social Research Institute, Dublin. His main research interests are labour market dynamics, income poverty, deprivation and social disadvantage. He has published widely on these issues in journals such as *Acta Sociologica*, *European Sociological Review*, *European Societies* and the *Journal of European Social Policy*. Address: Economic and Social Research Institute, 4 Burlington Road, Dublin 4, Ireland. [email: richard.layte@esri.ie]